

Appl. No. 10/619,449

Amendment transmitted on March 15, 2005

Reply to Office action of June 15, 2005

REMARKS

Claims 1-28 are pending in the present application.

No new matter has been added.

The Present Invention

The present invention relates to lightweight lignocellulosic composite board materials that have reduced board density while simultaneously maintaining good structural strength by utilizing a low-density filler material. (See Specification, Paragraph 0017). The low-density fillers used in the present invention are generally hollow or cellular glass microspheres, hollow polymeric microspheres, hollow ceramic micro-spheres, natural perlites, and similar such materials that form hollow or cellular microspheres in the lightweight lignocellulosic composite board. (Paragraph 0050).

Among other advantages, one benefit of the present invention is that by incorporating low-density cellular filler materials into lignocellulosic composite board materials, the density of lignocellulosic composite materials can be reduced by about 5% to about 20% while maintaining excellent strength properties relative to the same board composition except omitting the low-density filler material. (Paragraph 0017).

Rejection under 35 U.S.C. §103

The Examiner has rejected claims 1-3, 6, 9, 11, 16, 21-23, 27-28 under 35 U.S.C. §103(a) as being unpatentable over Takahashi, U.S. Patent No. 6,420,034 ("Takahashi '034"). The Examiner argues that Takahashi '034 teaches the use and manufacture of lignocellulosic composite boards comprising polymeric binder and lignocellulosic wood pieces. (Office Action

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of March 15, 2005, page 2, paragraph 2). The Examiner also asserts that Takahashi '034 discloses the use of hollow microspheres in board making. (Id.). The Examiner concedes that Takahashi '034 fails to disclose that "microspheres should be used in the composition with wood pieces and polymeric binder." (Id.). But the Examiner nonetheless asserts that it would be obvious to use microspheres in a lignocellulosic composite board material as in the present invention because Applicants admit in the specification page 5, lines 2-18, that "hollow microspheres have been used as a popular low-density filler material"; and accordingly the Examiner concludes that it would have been obvious to one having ordinary skill in the art to use such microspheres in the Takahashi '034 composition since it would optimize the density of the board. (Office Action of March 15, 2005, page 2, paragraph 2).

Applicants disagree with the Examiner's reasoning and analysis and traverse this rejection as follows.

Takahashi '034 discloses a board formed in a hot press molding operation and containing a lignocellulosic material as well as an isocyanate-based binder composition. (Col. 2, lines 21-24). The binder composition is preferably a compound having: at least two isocyanate groups or their reaction products, a low-molecular weight polyethylene, water, a monofunctional alcohol, and a polyol. (Col. 4, lines 42-54). The result is a board product that has good releasability from a hot press plate, excellent physical properties, and low hygroscopicity. (Col. 2, lines 18-23).

In order to establish a *prima facie* case of obviousness, the Examiner must make all of the following showings: (1) there must be some suggestion or motivation to modify or

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combine the reference(s) as suggested by the Examiner (it is not sufficient to say that the cited reference(s) can be modified or combined without a teaching in the prior art to suggest the desirability of the combination or modification); (2) there must also be a reasonable expectation of success for the modification or combination; and (3) the reference(s), taken either alone or in combination, must teach or suggest all elements of the present claims. (M.P.E.P. §2143).

The present claims are not obvious in view of Takahashi '034 and the admissions in the present specification. First, the Examiner has not identified any teaching or suggestion that would have motivated combining Takahashi '034 with the admissions contained in the present invention. In order to combine prior art references, the Examiner must point to some factual or scientific basis to support the combination. " 'The factual inquiry whether to combine references must be thorough and searching.' It must be based on objective evidence of record." *In re Lee*, 61 U.S.P.Q.2d 1430, 1433 (Fed. Cir. 2002)(citations deleted).

The Examiner has failed to make a thorough and searching factual inquiry here to support the proposed combination of references. The only teaching or suggestion identified by the Examiner for combining these references is that: "it would have been obvious to one having ordinary skill in the art at the time of the invention to use such hollow microspheres in the Takahashi '034 composition since such would optimized density of the board..." (Office Action of March 15, 2005, page 2, paragraph 2). However, because there is no suggestion in Takahashi '034 that the optimization of the density is desirable, the Examiner has selected the design criteria of density optimization either *sua sponte*, without supporting the selection, or has used the brief reference to panel density in the Applicant's specification as a blueprint to reconstruct

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the invention. Takahashi '034 does not even mention optimizing the panel density as a fundamental value. Thus, it appears that the Examiner is using Applicant's specification as a blueprint to reconstruct the invention. Such hindsight reconstruction is, of course, impermissible.

Accordingly, the Examiner has failed to identify any suggestion or motivation to combine the references in the manner suggested by the Examiner.

Additionally, even assuming that it would be appropriate to combine the admissions in the present specification cited by the Examiner and Takahashi '034, those combined references do not teach or suggest all elements of the present claims. For example, the Examiner has asserted that Takahashi '034 discloses the use of microspheres in wood: "[t]he applied reference (Takahashi '034) teaches that hollow microspheres have been used in board making." (Office Action of March 15, 2005, page 2, paragraph 2). But Applicants cannot find any teachings in Takahashi '034 relating to microspheres. Additionally, the present claims specifically recite that the hollow microspheres which are used are contacted at their surfaces by a cured polymeric resin, and that the predominantly lignocellulosic wood pieces are discontinuously bonded together by the binder resin. Neither of these two elements are taught by the combination of the admissions in the present specification cited by the Examiner and Takahashi '034 as proposed by the Examiner.

Accordingly, because the combination of the admissions in the present specification cited by the Examiner and Takahashi '034 fail to teach or suggest all of the

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elements of the present claims, Applicants maintain that the present claims 1-3, 6, 9, 11, 16, 21-23, 27-28 would not be obvious in view of the aforementioned references.

Therefore, based on the above remarks, the Examiner has failed to establish that the present claims are obvious over the present specification cited by the Examiner and Takahashi '034. Reconsideration and withdrawal of the rejection of claims 1-3, 6, 9, 11, 16, 21-23, 27-28 are respectfully requested.

ALLOWABLE SUBJECT MATTER

At page 3, paragraph 3 of the Office Action mailed March 15, 2005, the Examiner indicated the claims 4-5, 7, 10, 12-15, 17-20, 24-26 were allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. Applicants appreciate the Examiner's notice regarding the allowability of these claims, but believe that all of the pending claims in the present application are patentable.

CONCLUSION

Reconsideration and withdrawal of the objection and rejection of the claims in view of the remarks provided herein and allowance of the claims being prosecuted are respectfully requested.

Respectfully submitted,

Dated: 15 June 2005

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